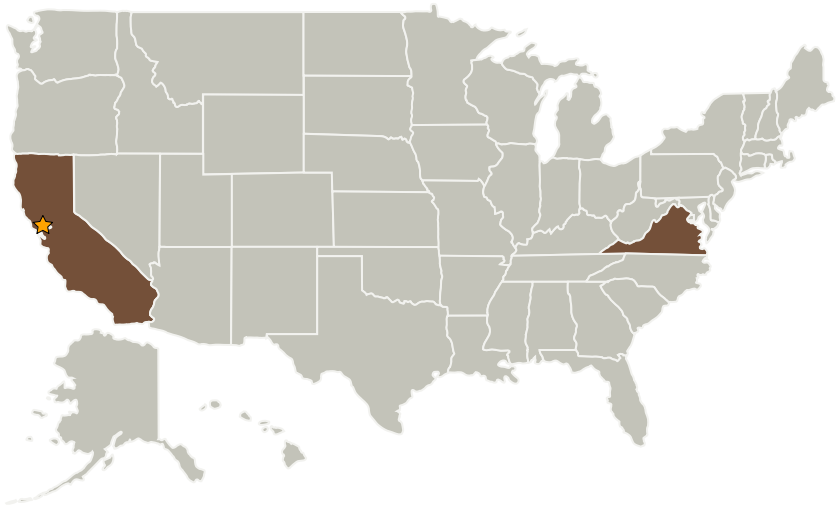
Software Environment for Mission Design, Simulation, and Engineering Data Management, Phase I

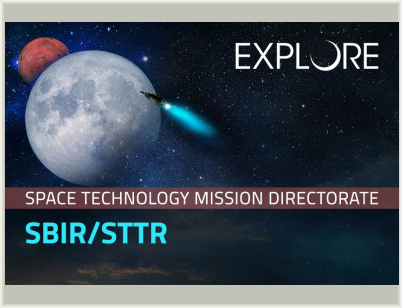
Completed Technology Project (2009 - 2009)

Project Introduction

As NASA designs and develops the next generation of scientific and space exploration vehicles and missions, there is a growing need for a robust, flexible, and easy-to-use software framework that NASA engineers can use to rapidly analyze, design, simulate, and evaluate competing vehicle and mission concepts. This need is particularly acute for small satellite design missions (such as Low-Cost Small Spacecraft and Technologies Missions) and other missions with small budgets and cost margins. In this project, Phoenix Integration will develop a software framework for flexibly meeting these needs. Working within the framework, NASA engineers will be able to flexibly assemble mission simulation models by choosing components from a custom library of reusable analysis modules. Once the system models are created, the framework will be capable of automatically executing these models, seamlessly transferring data from analysis to analysis as required. Mechanisms will be provided in the user interface that will allow engineers to archive important models, designs, data, and meta-data in an "Analysis Library" during the design process. This Analysis Library will be fully indexed and searchable, and will serve as a central information repository for facilitating communication and collaboration between team members, preserving important models, data, and knowledge for future reuse, and helping to capture design knowledge and document the decision making process.

Primary U.S. Work Locations and Key Partners





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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Phoenix Integration	Supporting Organization	Industry	Blacksburg, Virginia

Primary U.S. Work Locations	
California	Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX07 Exploration Destination Systems
  - TX07.3 Mission Operations and Safety
    - TX07.3.1 Mission Planning and Design